

Laser sensor for vibrations and deflections



Technology description

There is often a need for the continuous monitoring of stability and assessment of the loss of operational parameters of building structures subjected to mining-induced impacts, road or rail transport, as well as the impact of hydrogeological, atmospheric and operational factors. A comprehensive analysis of these phenomena necessitates the automatic and continuous monitoring of these parameters, while maintaining the appropriate accuracy and precision of the measurement.

The laser sensor for vibrations and deflections allows for an accurate and continuous

measurement of a building's deflections, ensuring the automation of surveying measurements.

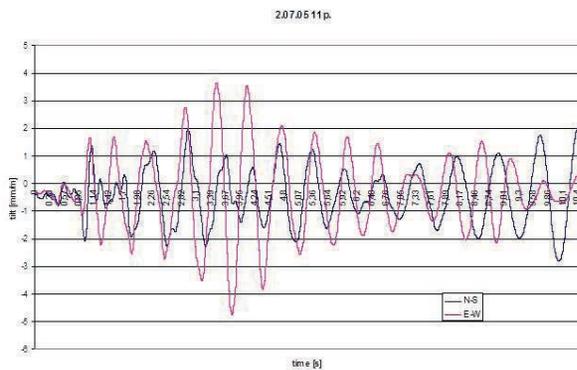
The results, presented in graphical form, provide a comprehensive picture of changes, both in terms of the value of deflections (in mm of deflections per meter of height [mm/m]), their directions (e.g. in relation to the four cardinal directions) and the time in which they occurred. The equipment and software used enabled the graphical visualization of data in real time, their recording on carriers or transmission in a GSM or GSM / GPRS modular system of mobile telephony to a central computer. The program used is intended for the visualization of time courses recorded by all sensors.

The browser is equipped with an active marker facilitating the reading of data from any minute, as well as a magnifying glass and the option to change the time base.

DEPARTMENT OF TECHNICAL ACOUSTICS
AND LASER TECHNOLOGY
Laboratory of Laser Technology

Ph. Sc., Prof. GIG Janusz Kompala
E: jkompala@gig.eu
T: +48 32 259 22 34

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The advantages of this technology

This solution and method of measuring low-frequency vibrations and deflections allows objects of various types to be monitored. Permanent supervision takes place for such objects as: residential buildings, historic buildings, towers and high chimneys, overpasses, industrial halls, shafts and hoist towers.

Application

The laser vibration and deflection sensor is used for the continuous monitoring of a number of structures located in areas affected by mining exploitation.

